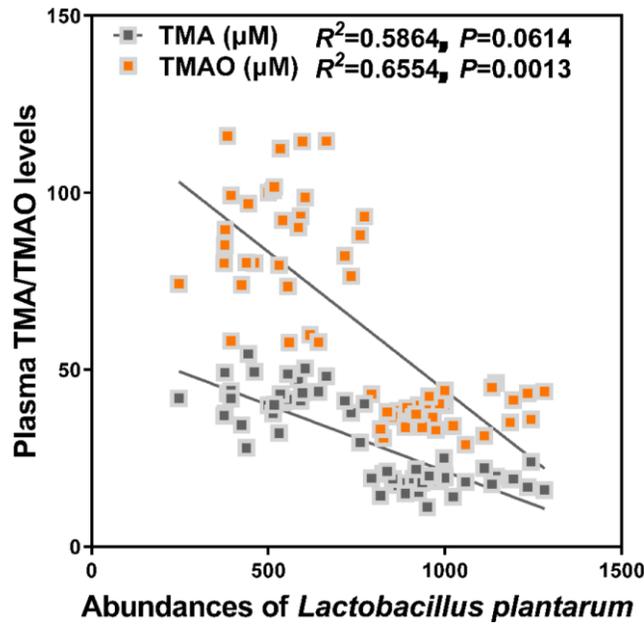
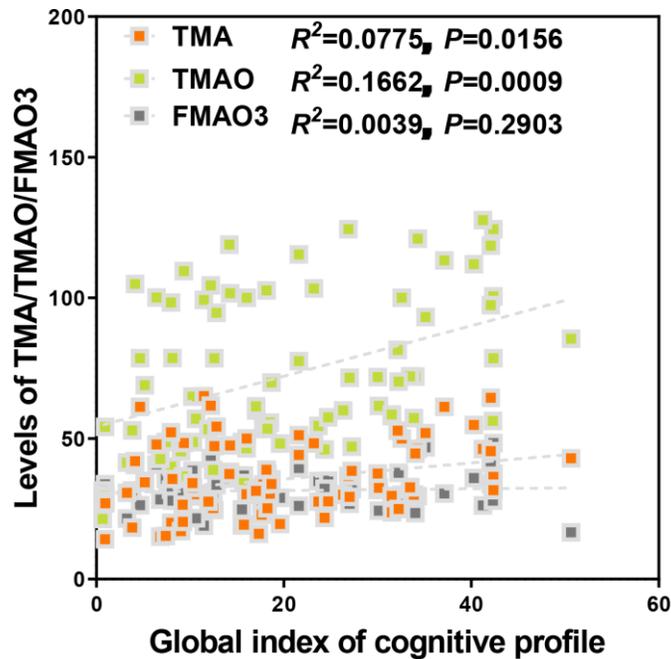


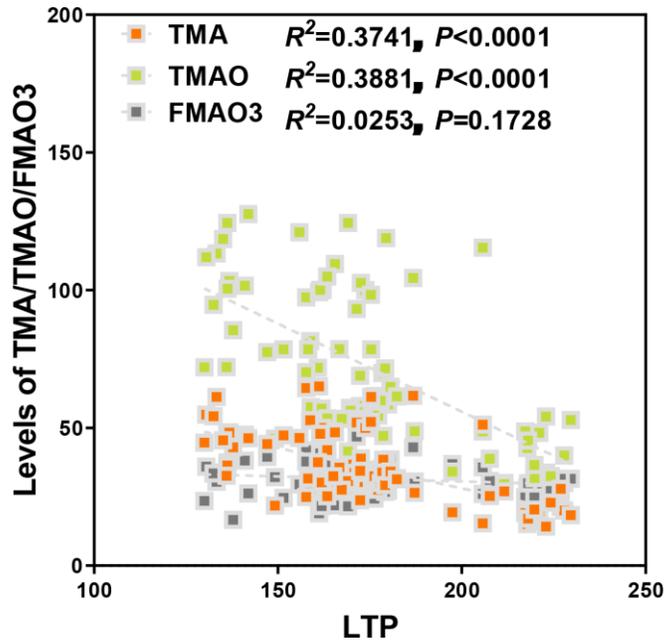
SUPPLEMENTARY FIGURES



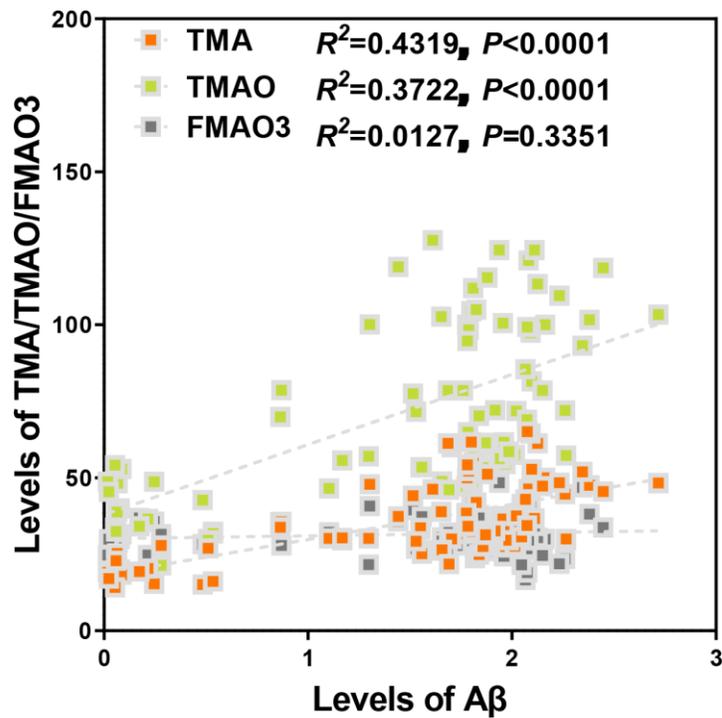
Supplementary Figure 1. Pearson correlation between the relative abundances of *L. plantarum* and plasma TMA and TMAO concentrations from mice grouped by dietary status (chow and choline). n=60.



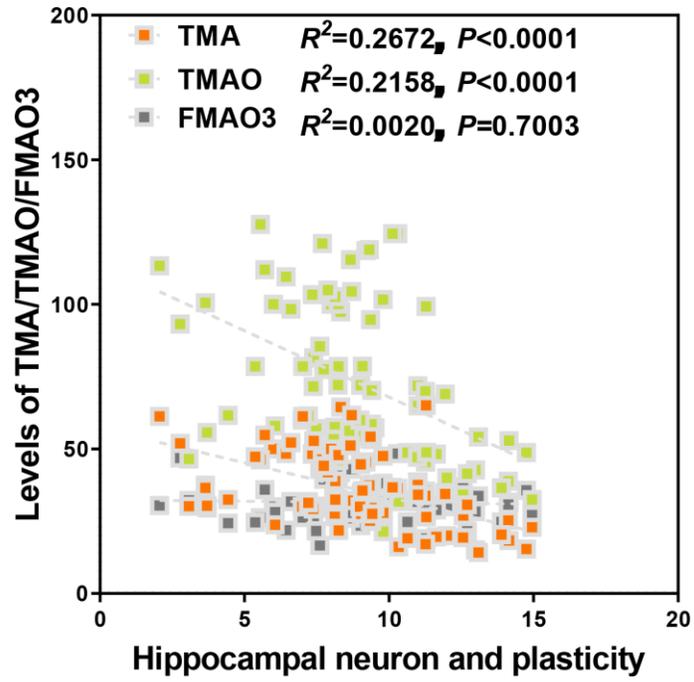
Supplementary Figure 2. Spearman correlation between the TMA/TMAO/FMAO3 concentrations and cognitive impairments in WT and APP/PS1 mice. n=75.



Supplementary Figure 3. Spearman correlation between the TMA/TMAO/FMAO3 concentrations and LTP in WT and APP/PS1 mice. LTP means long-term potentiation. n=75.



Supplementary Figure 4. Spearman correlation between the TMA/TMAO/FMAO3 concentrations and A β deterioration in the hippocampus of WT and APP/PS1 mice. n=75.



Supplementary Figure 5. Spearman correlation between the TMA/TMAO/FMAO3 concentrations and hippocampal neuron and plasticity deterioration in the hippocampus of WT and APP/PS1 mice. n=75.